

REMARKS

The Office Action mailed on July 10, 2008, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-17, 23 and 24 were pending. By this paper, Applicant cancels claims 23 and 24, and does not add any claims. Therefore, claims 1-17 are now pending.

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 1 and 17 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. In response, in order to advance prosecution, and without prejudice or disclaimer, Applicant hereby amends claims 1 and 17, as seen above, and requests reconsideration in view of these amendments.

Claim Rejections Under 35 U.S.C. §103(a)

In the Office Action, claims 1, 7, 16 and 17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kanbara (JP 2000-149970) in view of Ozeki (JP 2002-367646). Claims 1, 7, 13, 16, 17, 19, 20, 23 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Saito (JP 2000-164233) in view of Kanbara, with claim 2 being rejected in view of this combination when combined with Koizumi (U.S. Patent No. 4,818,845). Claims 3-6 are rejected in view of Saito when combined with Kanbara and Gerstmann (U.S. Patent No. 5,772,113). Claims 8 and 9 are rejected in view of Saito when combined with Kanbara and Breault (U.S. Patent No. 6,699,612). Claim 10 is rejected in view of Saito, Kanbara and Breault when combined with Yamada (U.S. Patent No. 5,482,790). Claim 11 is rejected in view of Saito in view of Kanbara and Breault and Roberts (U.S. Patent Publication No. 2001/0055707). Claim 12 is rejected as obvious in view of Saito, Kanbara, Breault when combined with Bonville (U.S. Patent No. 6,248,462). Claims 14 and 15 are rejected over Saito in view of Kanbara, Breault and Nelson (U.S. Patent No. 5,412,475).

In response, in order to advance prosecution, and without prejudice or disclaimer, Applicant hereby amends independent claims 1 and 17, as seen above, and respectfully submits that the claims are allowable for at least the following reasons.

With reference to Fig. 1, claim 1 recites a fuel cell device including:

- (i) a first antifreeze circulation flow passage (a flow denoted by arrow “A”) adapted to circulate an antifreeze solution through a fuel cell (1) and a radiator (11) and
- (ii) a second antifreeze circulation flow passage (a flow denoted by arrow “B”) adapted to circulate the antifreeze solution through the fuel cell (1), a water storage unit (5) and an antifreeze heater (17), by bypassing the radiator (11).

Such a fuel cell device has an advantage of efficiently heating the water stored in the water storage unit (5) because when the water needs to be heated (*e.g.*, the scenario where frozen water in the system must be melted), the fuel cell device can directly supply the antifreeze solution, subjected to heat transfer with respect to the antifreeze heater (17), to the water storage unit (5) without cooling the antifreeze solution in the radiator (11).

I. The bypass feature and the associated recitations of the second antifreeze circulation flow passage are not taught by the cited references.

As a preliminary matter, some of the features added to claims 1 and 17 were present in previously pending claims 23 and 24, which were not rejected in view of the alleged Kanbara-Ozeki combination, and thus claims 1 and 17 are not obvious in view of Kanbara-Ozeki for at least this reason.

Kanbara does disclose a power generation system for an electric vehicle in which, when a fuel cell (1) is started, the cooling water heated by the heater (15) circulates through the fuel cell (1) and a bypass (17) and thus bypasses the radiator (12). However, the cooling water heated by the heater (15) is not supplied to the water tank (4) when the bypass (17) is used to bypass the radiator (12). Thus, the power generation system of Kanbara is equipped

with an auxiliary tank (7) and a separate heater (11) used to heat the auxiliary tank (7), which is in turn used to heat the water stored in the water tank (4). Put another way, in Kanbara, the cooling water *must inevitably* be passed through the radiator (12) in order to be supplied to the water tank (4), as may be clearly seen from Fig. 1, in contrast to claim 1, where the cooling water bypasses the radiator to reach the claimed water storage unit. That is, even if cooling water is heated by the heater (15), the radiator (12) is decidedly used to cool the cooling water.

Because claim 1 recites supplying the water storage unit (5) with an antifreeze solution heated by the antifreeze heater (17) without cooling the antifreeze solution in the radiator (11), the invention of claim 1 does not have the features of Kanbara. Conversely, because of the principle of operation of Kanbara, Kanbara does not have the features of claim 1 detailed above.

Neither Ozeik nor Saito remedy the deficiencies of Kanbara. Ozeik is merely used in the Office Action to teach the alleged interchangeability of water and antifreeze, and it appears that the PTO recognizes the deficiencies of Ozeik with respect to the recited structure of the claims. Presumably, this is the reason that Ozeik was not used to reject claims 23 and 24; claims including some of the features now present in claims 1 and 17, respectively.

Saito discloses a bypass passage used to bypass an antifreeze radiator (13). However, as is clearly seen in Fig. 3, Saito does not show any supply line which supplies an antifreeze solution to a water storage unit (26). That is, just as in the case of Kanbara, Saito does not teach or suggest the feature of bypassing the antifreeze radiator (13) (e.g., to avoid cooling the antifreeze solution by the antifreeze radiator (13) in order to efficiently heat the water stored in the water storage unit (26) by the antifreeze solution.

II. The hot medium flow passage disposed around and conforming, in a contacting relationship . . . on an outside of the water storage unit is not taught by the cited references, and is not inherent.

Claim 1 recites the feature of:

a hot medium flow passage disposed around and conforming, in a contacting relationship, to a water contact section on an outside of the water storage unit to allow the antifreeze solution, heated by the antifreeze heater, to flow around the outside of the water storage unit.

Recognizing that there is no explicit teaching of this feature in Kanbara, the Office Action asserts that it “is inherent that the hot medium flow passage “16” is conforming, in a contacting relationship, to a water contact section on an outside of the water storage unit to allow the cooling medium to flow around the outside of the water tank.” (Office Action, page 6, second paragraph, emphasis added.) *It is not inherent, and the assertion of such contradicts the requirements for rejecting a claim based on inherency*, as will now be detailed.

MPEP § 2112(IV) states that, with respect to an inherency rejection, an “[E]xaminer *must* provide rationale or evidence tending to show inherency.” (MPEP § 2112(IV), title, emphasis added.) It is respectfully submitted that no evidence tending to show inherency has been provided in the present Office Action. Further, in considering the Office action, it is respectfully submitted that § 2112 inherency is not being properly implemented. In arriving at this conclusion, Applicant relies on the following excerpt from MPEP § 2112(IV):

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijkaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons

of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.)

(Emphasis added.) Inherency means that *the missing descriptive matter is necessarily present* in the reference. The courts have allowed the PTO to rely on inherency arguments to free the PTO from the necessity of finding references which explicitly state that inherent elements are present. This is because certain characteristics are inherent, the references will most probably not mention these elements, and, as such, will be difficult to find. For example, it is not necessary to find a reference that explicitly states that plutonium 239 is radioactive, as plutonium 239 is always radioactive. That is, radioactivity is an inherent feature of plutonium 239. However, inherency is not a panacea that enables the PTO to use references which are *deficient* in teaching certain elements of a claim. Recognizing the power of the inherency argument, the courts have tempered its use, as is seen in § 2112, where the PTO has stipulated that the examiner corps must follow certain procedures before invoking inherency: the “examiner must provide rationale or evidence tending to show inherency.” In the present case, no such rationale or evidence has been provided in the Office Action. Instead, a mere conclusory statement is made that the feature is inherent. That is all.

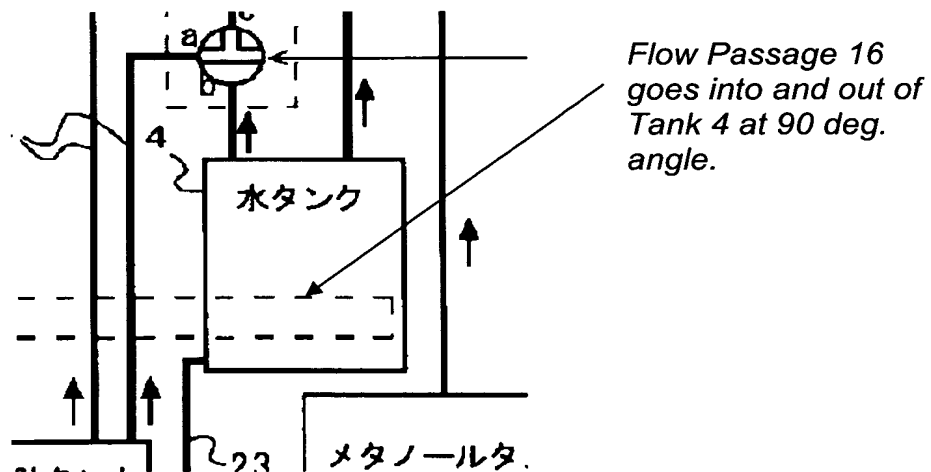
That conclusory statement contradicts the clear teachings of Kanbara, which, in Fig. 1, shows the asserted flow passage 16 to pass into the asserted tank 4, make a “U-turn,” and then pass out of the asserted tank 4. The intersections of the outer wall of the tank 4 and the flow passage 16 are depicted as 90 degree angles.

Even without the clear teaching of Kanbara in Fig. 1, the use of inherency in the Office Action cannot be sustained. Even if it might have been desirable to have the recited feature in Kanbara, a desirability that has not been established in any way beyond, at most, the teachings of Applicant’s disclosure, it does not mean that such recited features are always present. Just the opposite is true: it would have been likely to not have each and every

element of the claimed invention in Kanbara, *especially in view of the teachings of Fig. 1 just identified*. The subject matter claimed in claim 1 is not *necessarily present* in Kanbara, contrary to the assertions of the Office Action. It is entirely probable that Kanbara will be practiced without controlling the fuel utilization ratio as claimed. Indeed, that is what Kanbara teaches – the opposite of the present invention. Just as was the case of the third fastener in the example provided in the MPEP quoted above, the subject matter of Applicants' claims is not expressly or inherently disclosed in Kanbara. Thus, a reference that explicitly teaches these limitations must be found, else the claims must be allowed.

III. Kanbara teaches away from the hot medium flow passage disposed around and conforming, in a contacting relationship . . . on an outside of the water storage unit.

As noted above, in Fig 1 of Kanbara, the asserted flow passage 16 passes into the asserted tank 4, makes a “U-turn,” and then pass out of the asserted tank 4. The intersections of the outer wall of the tank 4 and the flow passage 16 are depicted as 90 degree angles.



Excerpt from Fig. 1 of Kanbara

This is directly the opposite of the feature of a “hot medium flow passage disposed around and conforming, in a contacting relationship, to a water contact section on an outside of the

water storage unit to allow the antifreeze solution, heated by the antifreeze heater, to flow around the outside of the water storage unit.”

MPEP § 2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a “*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” (MPEP § 2144.05(III), second paragraph, emphasis added, citations omitted.) MPEP §2145(X)(2) further states that it “is improper to combine references where the references teach away from their combination.” In view of the above (Kanbara teaching that the flow passage snakes in and then out of the tank), Applicant respectfully submits that to the extent that a case of obviousness has been established, that case is hereby rebutted.

IV. Applicant incorporates by reference the arguments of the April 14, 2008, Response, and traverses the unfounded assertions made in the “Response to Arguments” section of the Office Action.

Applicant previously detailed that in Kanbara, water is supplied from the auxiliary tank 7, and not tank 4, to the fuel cell during a start-up of the fuel cell. (See April 2008 Response, page 8, second and third paragraphs.) In response, the Office Action merely asserts that “Kanbara et al is at least capable of supplying water” as claimed, and states that “applicant is reminded that a recitation of the intended use of the claimed invention must result in a structural difference . . . If the prior art structure is capable of performing the intended use, then it meets the claims.” This is incorrect.

First, it appears that the Office Action recognizes that Kanbara does not teach the just-quoted feature.

Second, simply because a device may be modified to arrive at a claimed invention does not render those features obvious. This has never been a rule. Indeed, to the extent that there is a rule regarding the ability of a prior art reference to be modified with respect to a prior art rejection, the capability of the prior art being modified is a mere prerequisite to a finding of obvious. More is needed.

Third, *Applicant utilizes the phrase “adapted to” in claim 1 and its dependencies*, and thus the recitations of these claims are more than just a mere “intended use.” They are,

instead, structural recitations. Both the Court of Appeals for the Federal Circuit / CCPA, which has appellate review over the grant and denial of patent claims, and the Board of Patent Appeals and Interferences within the PTO, have repeatedly held that functional limitations may be used to claim a structure capable of performing a recited function, and that functional limitations connote structure that must be taken into account in distinguishing a claim from the prior art. For example, *In re Venezia*, **which is specifically cited at MPEP §2173.05(g)**, held that functional language, such as “member adapted to be positioned,” connotes a structural limitation that accordingly must be given patentable weight in evaluating a claim. (*In re Venezia*, 530 F.2d 956, 959, 189 USPQ 149, 151-52 (CCPA 1976).) A more recent case, *Pac-Tec v. Amerace Co.*, upheld the validity of a claim utilizing the phrase “adapted to,” followed by a recitation of function, on the grounds that functional language may not be disregarded in evaluating patentability in view of the prior art. (*Pac-Tec v. Amerace Co.*, 903 F.2d 796, 800-01, 14 U.S.P.Q.2d 1871 (Fed. Cir. 1990).)

Applicant believes that at least 40 Board of Patent Appeals and Interferences Decision cite *In re Venezia* in cases where claims at issue utilized functional language. One of the more recent Board decisions on point, *Ex Parte Vickie Miller and Terry Miller*, stated that the

various functional limitations in the claims (*e.g.*, that the elongated member is “adapted to extend between an armrest assembly and a seat member” . . .) set forth a function which the apparatus must be structurally capable of performing (*see, e.g., In re Venezia*) and such a functional statement must be given full weight and may not be disregarded in evaluating the patentability of the claims.

(Emphasis added, citations omitted.) (*Ex Parte Vickie Miller and Terry Miller*, Appeal No. 97-0972, Application No. 08/399,571, 1997 WL 1883929.) The claims of this case also utilized the language “configured to.”

In sum, both the Federal Circuit and the Board of Patent Appeals and Interferences recognize that functional claim language connotes structural recitations which must be considered in evaluating the patentability of an invention in view of the prior art, and thus the direction of the MPEP §2173.05(g) in this regard is correct.

* * * * *

Claim 17 utilizes means-plus-function language, and thus that claim recites structure to accomplish the recited functions. To assert the obviousness of a means-plus-function claim by simply asserting that “the prior art structure is capable of performing the intended use” is a violation of the provisions of 35 U.S.C. §112, 6th paragraph. In this regard, it is submitted that the Office Action did not properly examine claim 17.

Applicant takes this time to point out that the rejections outlined in the Office Action in view of claim 17 does not comport with the requirements of MPEP §2183 for examining claims under 35 U.S.C §112, 6th paragraph, which states that if “the examiner finds that a prior art element (A) performs the function specified in the claim, (B) is not excluded by any explicit definition provided in the specification for an equivalent, and (C) is an equivalent of the means- (or step-) plus function limitation, *the examiner should provide an explanation and rationale in the Office Action as to why the prior art element is an equivalent.*”

(Emphasis added.) Applicants respectfully request that if claim 17 is again rejected in view of the prior art, any next Office Action meet the requirements of MPEP §2183 for examining claims under 35 U.S.C §112, 6th paragraph.

V. Summary of traversal of prior art rejections.

Accordingly, due at least to the just-detailed deficiencies of the cited references, claim 1 is not obvious. Claim 17 is not obvious for at least the pertinent reasons that render claim 1 not obvious. The dependent claims are not obvious due at least to the non-obviousness of claim 1.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or

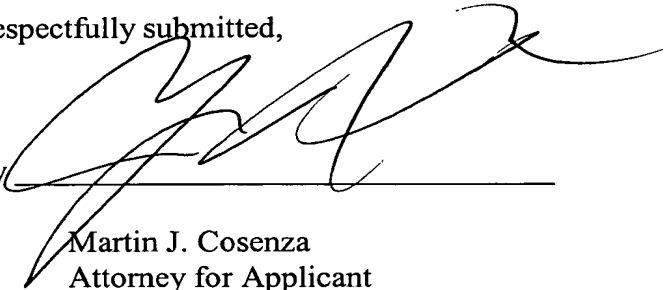
even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Chuo is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

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